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AMERICAN STATISTICAL ASSOCIATION

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STATISTICS AND GOVERNMENT.*

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Since the American Statistical Association was founded in 1839 no year has brought such stirring changes in American statistics as the year now closing. The war forced a rapid expansion in the scope of federal statistics and the creation of new statistical agencies. What is more significant, the war led to the use of statistics, not only as a record of what had happened, but also as a vital factor in planning what should be done. The war also brought an unprecedentedly large number of statisticians into government employ. Probably there are few professional societies which have had so considerable a proportion of their membership engaged in war work as this Association.

Tonight we feel a just pride in the service our fellow members have rendered. We cherish the hope that what they have helped to accomplish during the war toward the guidance of public policy by quantitative knowledge of social fact may not be lost in the period of reconstruction through which we are passing, and in the indefinite period of peace upon which we are about to enter. To forward that hope the Association may seek a more active share in the work of federal statistics in the future than it has ever taken in the past.

It is my pleasant task tonight to speak of these things—our work in the year that has gone, our hopes for the years to come, and what we may do in the present toward achieving these hopes.

*Presidential address at the eightieth Annual Meeting of the American Statistical Association, Richmond, Virginia, December, 1918.

I.

Dr. Cummings's review of Federal Statistics in our Memorial Volume shows that before the war there were more than a score of statistical bureaus in Washington publishing thousands of pages of figures each year. But there was no coördinating agency, no bureau whose duty it was to consider the statistical needs of the government as a whole and to formulate systematic plans for supplying these needs. Hence, there was duplication of work, no one knows exactly how much; many important fields were imperfectly covered, or not covered at all; the results of different bureaus could not be compared or combined readily because of differences in units used, in periods covered, and in classification; finally, the cost of federal statistics was needlessly high. To remedy these defects of organization Committees on Federal Statistics appointed by this Association and the Economic Association had endeavored to secure the appointment of a Central Statistical Commission; but they had met with little encouragement. As one member of these committees, I confess that our efforts had not been vigorously pushed.

The war revealed the defects of the federal machinery for collecting statistics with startling suddenness; for war imposes a strain upon statistical offices quite as much as upon steel mills, or shipyards. As Professor Young said in his presidential address last year, "War has come to be a conflict of directed masses,—of aggregates. Men, money, munitions, food, railways, shipping, raw materials, and manufactured products in great variety are impressed into the service of the nation. The problems of the effective control and use for war purposes of these varied national resources is intimately dependent upon a knowledge of their quantities, that is, upon statistics. . . . Just as this war is our largest national undertaking, so its statistical demands constitute, in the aggregate, the largest statistical problem with which we have had to deal."

We were not prepared to cope with this problem. It is not to be expected, of course, that the statistical output of peaceful years will include all the data required for waging war. But it is to be expected that a governmental organization for gathering statistics will grasp a new statistical problem promptly

and prepare plans for treating that problem with vigor. This test our federal bureaus failed to meet.

The fault was emphatically a fault of organization rather than of individual officials. Whatever charges of incapacity are made against the officials themselves properly should be made against the system under which federal statisticians are chosen and rewarded. For they are not chosen with an eye single to technical skill and administrative capacity; they are not paid salaries sufficient to attract and retain men of uncommon ability and ambition; the inadequate salaries are not compensated by public recognition of efficient service. We had, indeed, many federal statisticians better than our treatment deserved,—men who served the country with zeal and intelligence. But, scattered through numerous small bureaus, prescribed a set routine of departmental duties, granted scanty appropriations, these men had little chance to consider the vast new problems of the war. They certainly did not, perhaps they could not, come forward with an efficient war program.

For this shortcoming of our statistical organization we paid a heavy penalty. The time we spent in framing our war organization and getting it started might have been substantially shortened had anybody in Washington been able to put before the responsible authorities promptly the data they needed concerning men and commodities, ships and factories.

What did happen made an admirable exhibition of national energy and patriotism, but not a good exhibition of national intelligence. The War Boards which the government set up to supplement the regular departments faced stupendous tasks. They were led and manned for the most part by men inexperienced in public administration, and unacquainted with the duties and resources of the federal departments. While these men were in the throes of laying their plans, and forming their staffs, they had also to find out that they needed statistics, what statistics they needed, and how to get them. Although the federal government entered the war with twenty or more statistical agencies, the Council of National Defense, the Food Administration, the Fuel Administration, the Shipping Board, the War Trade Board, the Railway Administration, and the

War Industries Board, sooner or later set up each a new and independent statistical agency to meet its special needs. The War Department and the Navy Department followed suit. And these agencies, like the War Boards which created them, had to be manned with people inexperienced in government work and unfamiliar with Washington.

Although I was one of the raw recruits pressed into emergency work for the government, I cannot forbear speaking of the fine qualities which the new statistical staffs showed. Each group studied the particular needs of the board which it served, and threw itself ardently into the task of collecting data. The new men worked with passionate intensity. They were appalled by no obstacles. Where they could not get definite data, they did not hesitate to estimate. The motto adopted by one of the leaders expressed the spirit of all: "It can't be done? But here it is."

Yet the statistical work of the War Boards as a whole showed precisely the same defect as the organization of the old statistical bureaus, and showed that fault in an aggravated degree. Each new agency worked by itself for a separate board. Hence there was much duplication of effort, and at the same time many important fields remained unworked; the results reached by different agencies could not be readily compared or combined: and the cost was needlessly great. Further, the energy of the new statistical agencies and the haste in which they worked magnified a minor fault of the old system to large proportions. These new agencies wanted to get their fundamental data from the original sources; so they sent out questionnaires to business men in a veritable flood. Many manufacturing plants got elaborate papers which they were asked to fill out and return by the next mail in tens and in dozens. Frequently, different questionnaires covered nearly the same ground, and usually they required not a little investigation within the plant to collect the data asked for. Considerable expense and serious irritation was caused throughout the country by this obvious failure of organization in Washington.

This questionnaire evil brought back a flood of complaints, echoes of which reached the responsible heads of the War

Boards. The efficiency of economic mobilization seemed threatened; that was a more serious matter than the waste of public funds. The men who were most keenly aware of the lack of coördination in statistical work now had a strong talking point. Steps were presently taken to remedy a fault which had been patent for a generation or more on a peace basis. The head of the Division of Planning and Statistics of the Shipping Board was put in charge of the Bureau of Research of the War Trade Board, and then of the Division of Planning and Statistics of the War Industries Board. Thus three of the new statistical agencies were brought under a single direction. Later the same man became chairman of the Statistical Committee of the Department of Labor, and finally he was authorized to form a Central Bureau of Planning and Statistics. The Central Bureau set up a clearing house of statistical activities, appointed contact men to keep touch with the statistical work of all the War Boards and certain of the old departments, and began to supervise the issuing of questionnaires. When the armistice was signed we were in a fair way to develop for the first time a systematic organization of federal statistics.

For the first few weeks after the fighting stopped, it seemed as if what had been gained in statistical organization might be lost almost at once. The rapid demobilization of the War Boards threatened to sweep with it their statistical bureaus, or to scatter the new statistical bureaus among the old departments and leave us again in statistical confusion—making figures in abundance but having no general statistical plan. But at a critical moment President Wilson approved a plan by which the Central Bureau of Planning and statistics was made the single statistical agency to serve the American conferees at the Peace Table. Thus, the Central Bureau was granted a reprieve for some months. It still remains to be seen whether this bureau or some successor serving the same centralizing functions will be made permanent.

II.

In speaking next of our hopes for the future, I am speaking merely as one member of the American Statistical Association.

Yet I believe that most members of our Association believe that the social sciences in general and social statistics in particular have a great service to render to government and through government to mankind.

The episode in statistical organization which I have sketched, the effect of the war upon our attitude toward the use of facts for the guidance of policy, links the present stage of civilization with man's savage past. Anthropologists have come to recognize that catastrophes have played a leading rôle in advancing culture. The savage and the barbarian are such conservative creatures that nothing short of a catastrophe can shake them out of their settled habits, make them critical of old taboos, drive them to use their intelligence freely. In physical science and in industrial technique, it is true, we have emancipated ourselves largely from the savage dependence upon catastrophes for progress. For in these fields of activity, we have developed a habit of criticising old formulations, of testing what our fathers accepted, of experimenting. We keep discarding the good for the better, even when not under pressure. The result is a fairly steady rate of advance,—advance so regular that we count upon it in laying plans for the future. Today we are sure that ten years hence our present scientific ideas and our present industrial machinery will be antiquated in good part. In science and in industry, we are radicals,—radicals relying on a tested method. But in matters of social organization we retain a large part of the conservatism characteristic of the savage mind. A great catastrophe may force us for a little while to take the problems of social mobilization seriously. While under stress we make rapid progress. But when the stress is past we relapse gratefully into our comfortable faith in the thinking that has been done for us by our fathers.

I know that here are ardent folk who will challenge these contentions at least for the present. They trust that the outburst of patriot fervor brought by the war will carry us triumphantly forward for a generation. They count on the generous self-sacrifice which all classes have shown, the fine discipline that our soldiers and war workers have maintained, to solve the problems of peace as they solved the problem of

war. Certainly we shall never be again precisely what we were before the war. But just as certainly we shall not remain what we have been during the war. We are all subject to emotional reactions, and, as John Dewey has pointed out, the state of mind produced by the return of peace differs from that produced by the outbreak of war just as widely as peace itself differs from war. No, we cannot depend on any carry-over of "war psychology" to organize democracy in peace.

The "social reformer" we have always with us, it is true. Or rather most of us are "social reformers" of some kind. And we all admire the qualities that go to make the leaders in social reform—warm sympathy for the oppressed, courage to face ridicule, flaming zeal in the face of indifference, tact and energy in conducting crusades. But an indefinite succession of campaigns to secure this, that and the other specific reform is what we have been having for a long, long time. Many of the reforms on which our grandfathers, our fathers, and our youthful selves have set their hearts have been achieved. Yet the story of the past in matters of social organization is not a story that we should like to have continued for a thousand and one years. Reform by agitation or class struggle is a jerky way of moving forward, uncomfortable and wasteful of energy. Are we not intelligent enough to devise a steadier and a more certain method of progress?

Most certainly, we could not keep social organization what it is even if we wanted to. We are not emerging from the hazards of war into a safe world. On the contrary, the world is a very dangerous place for a society framed as ours is, and I for one am glad of it. The dangers are increased by our very progress in industry and in democracy. Not long ago an English physicist reëmphasized the fact that modern Christendom is using up at an ever-increasing pace the energy stored during long ages in the coal fields, and pictured the doubtful fate of human kind as hanging on the race between science and the atom. Has not the time come to apply our intelligence to taking stock of the resources that the earth still holds and to developing methods of utilization that will protect our future? As for democratic progress, we know that men who can read and vote make restless citizens in a state where their work is not

interesting to them and where their rewards do not satisfy their sense of justice. And such is the present state of affairs with millions of aggressive Americans. They can be counted upon to change things by turmoil if things are not changed by method.

Taking us all together as one people in a group of mighty peoples our first and foremost concern is to develop some way of carrying on the infinitely complicated processes of modern industry and inter-change day by day, despite all tedium and fatigue, and yet keeping ourselves interested in our work and contented with the division of the product. That is a task of supreme difficulty—a task that calls for intelligent experimenting and detailed planning rather than for agitation or class struggle. What is lacking to achieve that end, indeed, is not so much good will as it is knowledge—above all, knowledge of human behavior.

Our best hope for the future lies in the extension to social organization of the methods which we already employ in our most progressive fields of effort. In science and in industry, I have said, we do not wait for catastrophes to force new ways upon us. We do not rely upon the propelling power of great emotion. We rely, and with success, upon quantitative analysis to point the way; and we advance because we are constantly improving and applying such analysis.

While I think that the development of social science offers more hope for solving our social problems than any other line of endeavor, I do not claim that these sciences in their present state are very serviceable. They are immature, speculative, filled with controversies. Their most energetic exponents are still in the stage of developing new "viewpoints," beginning over again on a different plan instead of carrying further the analysis of their predecessors. In part the social sciences represent not what is so much as what their writers think ought to be. In short, the social sciences are still childish. Nor have we any certain assurance that they will ever grow into robust manhood, no matter what care we lavish upon them. There are blind leads of speculation in which past generations have mined industriously for ages with little gain. Perhaps the social sciences will prove more like metaphysics

than like mechanics, more like theology than like chemistry. The race may always shape its larger destinies by a confused struggle in which force and fraud, good intentions, fiery zeal, and rule of thumb are more potent factors than measurement and planning. Those of us who are concerned with the social sciences, then, are engaged in an uncertain enterprise; perhaps we shall win no great treasures for mankind. But certainly it is our task to work out this lead with all the intelligence and the energy we possess until its richness or sterility be demonstrated.

The social sciences, however, cover an immense field, and it is not probable that we shall encounter failure or success in all its parts. The parts where effort seems most promising just now are the parts in which this Association is particularly interested. Measurement is one of the outstanding characteristics of science at large, whether in the field of inorganic matter or life processes. Social statistics, which is concerned with the measurement of social phenomena, has many of the progressive features of the physical sciences. It shows forthright progress in knowledge of fact, in technique of analysis, and in refinement of results. It is amenable to mathematical formulation. It is capable of forecasting group phenomena. It is objective. A statistician is usually either right or wrong, and his successors can demonstrate which. Statisticians are not continually beginning their science all over again by developing new viewpoints. Where one investigator stops, the next investigator begins with larger collections of data, with extensions into fresh fields, or with more powerful methods of analysis. In all these respects, the position and prospects of social statistics are more like the position and prospects of the natural sciences than like those of the social sciences.

Above all, social statistics even in its present state is directly applicable over a wide range in the management of practical affairs, particularly the affairs of government. And this practical value of statistics is readily demonstrable even to a busy executive. Once secure a quantitative statement of the crucial elements in an official's problem, draw it up in concise form, illuminate the tables with a chart or two, bind the memorandum in an attractive cover tied with a neat bow-knot, and

it is the exceptional man who will reject your aid. Thereafter your trouble will be not to get your statistics used, but to meet the continual calls for more figures, and to prevent your convert from taking your estimates more literally than you take them yourself.

We may well cherish high hopes for the immediate future of social statistics. In contributing toward a quantitative knowledge of social facts, in putting this knowledge at the disposal of responsible officials, we are contributing a crucially-important part toward achieving the gravest task that confronts mankind today—the task of developing a method by which we may make cumulative progress in social organization.

III.

What can the American Statistical Association do toward realizing these hopes? Of course, that is for the Association to decide; but I venture to submit certain recommendations to the Association's judgment.

My plea is that the Association seek to play a more active rôle in public affairs than it has played in the past. We are holding our eightieth annual meeting—few learned societies in this country are so old. Through all these years we have been mainly a learned society, cherishing our particular subject, criticising those who neglect or misuse it, occasionally proffering advice, summing up experience, but not participating aggressively in the rough and tumble of statistical practice. All this kind of work has been serviceable. Certainly conditions in Washington and the state capitals have made participation by outsiders in official statistics exceedingly difficult. But conditions have changed somewhat and if we do our part with vigor they may change more.

Two changes seem to me especially promising. One is the active share that many members of the Association have taken in war work. These men will not entirely lose their interest in federal statistics when they leave Washington. For the next few years at least we shall have a corps of workers who know a good deal about conditions under which government figures are compiled and used. These men will help to make the Association practical in any advice it may tender. Be-

cause of them we have greater capacity to do serviceable work now than we ever had before. The Association can be more helpful because it knows more and cares more about what the government bureaus do.

The second change is in the attitude of Washington officials toward the work of outsiders. Just as those of us who have been in government service temporarily have gained a sympathetic insight into the difficulties faced by the permanent statistical bureaus, so the members of the permanent bureaus have become better acquainted with the viewpoint of outside statisticians. They have listened to our criticisms; in turn, they have criticised many of our suggestions for improving their organization and practices. As a result, they know how to utilize our services better than they did before the war. And they are, I think, not unwilling to annul the divorce between working statistician and academic critic and enter into a new relationship of mutual understanding and coöperation.

One symptom of this new attitude is so gratifying that I cannot forbear calling especial attention to it. The Secretary of Commerce has asked the president of the American Economic Association and the president of the Statistical Association to appoint each a committee of three to advise with the Director of the Census on matters of statistical principle and on the selection of statistical experts. This arrangement, it is hoped, will be no formal affair; but a working plan by which the producers and the consumers of statistics can coöperate effectively to improve the products in which both parties are interested. To provide the two committees with working facilities an office and a secretary have been furnished them by the Director of the Census.

If we do our part toward making this arrangement a success, it may perhaps lead to the establishment of other bonds between the Associations which represent the statistical public and the offices in which statistics are prepared.

There are several practical measures toward which we may contribute if we like. For example, we may use our influence whenever opportunity arises to secure more adequate salaries for government statisticians. The scale of pay was too low before the war; the increased cost of living has made it shock-

ingly inadequate. Unless increases are granted many experienced men who would be glad to continue in public service will be compelled in justice to their families to look for openings elsewhere. Now that the war is over, we cannot justly ask these men to stint their children for the rest of us. The profession of the statistician demands ability and training not less than those needed by accountancy; yet from what I can learn, the average remuneration of statisticians is decidedly lower than that of accountants. As representing the statistical profession, it is certainly the right of this Association to urge vigorously a higher scale of salaries.

We may also take a definite stand upon the continuation of the new statistical activities begun during the war. The War Boards found it necessary to obtain monthly figures of stocks of certain commodities on hand, and monthly figures of the production of other commodities. These figures were collected in a variety of ways, by the Census Office, by trade organizations like the Tanners' Council, or by sections of the War Boards themselves. The results are of interest not only to the industries concerned, but also to the government and to the general public. The permanent maintenance of this service, perhaps in a modified form, is a measure that promises to command increasing support from business men. If systematically extended this work might well develop into a continuing census of production, simple in form, inexpensive; but of great value in forecasting business conditions and directing public policy.

Once more, there is the question which I mentioned in the first section of this address, whether the Central Bureau of Planning and Statistics is to be continued or disbanded when the Peace Conference has finished its work. Some centralizing agency to consider the statistical needs of the government as a whole, and to lay systematic plans for meeting these needs is our greatest statistical lack. On a question of this character, is it not the duty of the American Statistical Association to speak its mind?

In any action we take we shall do well to distinguish clearly between two types of statistics—the statistics that are used as a record of what has been and the statistics that are used as

a basis for planning what shall be. Of these two types record statistics are the more familiar. They constitute the figures that go into annual reports, that are analyzed minutely by the student, that are quoted long after by the historian. Such figures have an influence in shaping public policies; but that influence is vague and intermittent. The average administrative official cares little about what happened day before yesterday,—his thoughts are obsessed by what is happening today and what should happen tomorrow. Any one of us in his position would develop that frame of mind if he succeeded at all. What the administrator needs to guide public policy, what he will quickly learn to use if he gets them, is well organized planning statistics. Planning statistics to be of service must be strictly up-to-date. They must show the vital factors in the situation. They must be presented concisely, in standardized form, both in charts and in tables. The data must be simple enough to be sent by telegraph and compiled overnight. Rough approximations will serve the purpose. What we need practically at present is to develop statistical agencies for obtaining such planning statistics and putting them before the men whose decisions are important to the country, whether these men be administrators, legislators, or voters. As students our concern will continue to be chiefly with record statistics—they must not be neglected, indeed they must be extended and improved. But as men interested in affairs, our emphasis must be put upon the development and the use of planning statistics.

The policy of active participation in shaping statistical work which I am urging seems to me justified by the circumstances of the day. During the war we learned that many things which seemed impossible were easy of accomplishment if attacked with vigor. Doubtless, the situation has already crystallized in part; but many matters of governmental policy are still in a fluid state. Some changes will have to take place; the question is, what shall these changes be. If we put our technical knowledge and our practical experience at the disposal of the nation, we may increase our influence for years to come, and, what is vastly more important, we may help to make quantitative knowledge of facts a potent factor in government.